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March 19, 2024

Brazoria County
Attn: Commissioner Payne
111 E. Locust Street
Angleton, TX 77515

RE: Follets Island Dune Restoration Phase 2 Proposal (Revision 1)

Commissioner Payne,

The DEC Team is pleased to submit this revised proposal to perform Phase 2 professional services for the Follets Island Dune Restoration Project. The purpose of this proposal is to develop the plans, specifications, estimates and bid package to rehabilitate 5,300 linear feet (dependent upon the available construction budget) of the natural dune system that is adjacent to the CR257, the Bluewater Highway. The Phase 1 proposal for this effort was an alternatives analysis study that identified the preferred design for the dune. The preferred design was agreed upon by the Texas General Land Office and Brazoria County. The preferred option utilizes a round hay bale as the core of the dune covered by 2 feet of sand. The dune will be covered with a variety of native vegetation that will help protect the dune from future erosion.

This Phase 2 proposal includes: additional coordination with regulatory agencies, environmental and survey investigations for the extension, final engineering analysis for design, plans, specifications, cost estimates, the preparation of the bid package, bid phase services, and construction phase services.

In developing the proposal, DEC assumed any funds remaining from the Phase 1 budget would be rolled over to Phase 2. These funds were accounted for in the proposal development.

Total Phase 2 fee proposed for all services is $211,836, bringing the total cost for the project to $394,586.

The POC for the action is Chris Sallese, Chris.Sallese@decorp.com, 713-817-8497. Please refer all questions or comments to him.

Respectfully,

Christopher W. Sallese

Christopher W. Sallese, PMP
Program Manager
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Scope of Work

PROJECT DESCRIPTION

The scope of work includes project management, engineering design, agency and property owner coordination, bidding and award services, and construction phase services for the design and construction of approximately 5,300 linear feet (depending on available construction funding) of sand dune along CR 257 (Bluewater Hwy) northeast of freeport in Brazoria County Texas. This scope of work is based on a traditional design-bid-build project delivery approach.

The work shall include design of the sand dune along the beach side of CR 257 to an elevation five to seven feet above the existing ground. It is anticipated the dune typical section will include 3:1 slope on the beach side and 3:1 slope on the roadway side, with a rounded crest. The dune will consist of a soft core of round baled hay, staked to the existing beach with biodegradable stakes, and covered with a minimum of two feet of fine grain sand closely matching the existing beach sand. In addition to the sand dune, appropriate plants native to Texas will be designed for sand stabilization.

The work includes detailed design drawings, specifications, and construction cost estimates for the sand dune. Additional services include limited survey for design, environmental and cultural resource investigations, preparation of contract documents for bidding, and cost estimates. Advertisement, bidding, and award services will be provided by Brazoria County, with the assistance of the DEC Team.

The anticipated design schedule to provide bid ready documents is 3 months from a March 2024 notice to proceed date and final submission of contract documents no later than May 2024.

TASK DESCRIPTIONS

The Engineer shall perform the tasks required to deliver a complete and comprehensive design of the project and shall prepare final drawings and specifications suitable for public competitive bidding and construction. The scope of work to be performed is described in the following task descriptions.

TASK 1 – PROJECT MANAGEMENT

This task defines management procedures and actions to be utilized by the Engineer to facilitate timely and cost-effective delivery of quality services and products to Brazoria County. This task will consist of project monitoring, administration, and project QA/QC activities. Project Management tasks are based on a 12-month schedule including design, bidding and award, and construction phase services.

Task 1.1 - Monthly Progress Reports

The objective of this task is to monitor and report project work, budget, and schedule status. Management and oversight will be provided for project personnel, sub-consultants, and administrative support; for day-to-day management activities; and for allocating resources necessary to meet project objectives and deliverable schedule.

The Engineer will submit narrative status reports on or before the 15th of each month. Narrative status reports will be submitted in electronic format. Narrative status reports will include

accomplishments from the past month, work projected for the next 3 months, issues/concerns/information needs, and explanations of any cost or schedule variances.

The Engineer will organize and track project costs and prepare invoices in accordance with the Agreement. Monthly performance report updates will reflect actual expenditures for the preceding month, progress-to-date for each task, changes in scope, and an estimated completion percentage for the scope of services. Schedule updates will reflect work progress, changes in scope, changes in schedule, and any other changes that may impact project completion. The decision & design change log will be an Excel file that tracks each change, the date of change, and the reason for the change.

Deliverables:

- Monthly narrative status report
- Monthly invoice
- Monthly performance report update
- Monthly decision & design change log update (as needed)

Task 1.2 – Quality Assurance/ Quality Control (QA/QC)

The Engineer will perform Quality Control (QC) review of all deliverables submitted under this scope of work. All drawings, specifications, and cost estimates submitted will be accompanied by a form demonstrating and certifying that QC of all deliverables has been performed.

Task 1.3 – Project Schedule

This task is to manage the project's schedule element. The Engineer shall develop the Project Schedule which shall form the baseline for comparison with actual conditions as the design work progresses. The Engineer shall develop and monitor the schedule information to identify problem areas early so that corrective action can be initiated in a timely manner.

Cost management shall be achieved through application of on-going management procedures that include preparing a project budget and performing updates; and performing internal value engineering.

Schedule management shall be achieved through application of on-going management procedures including (1) preparation of a Project Schedule and (2) performance of schedule updates.

Task 1.4 – Schedule Modification and Updates

The Engineer shall provide an updated project schedule as part of the 50% and 100% Design Submittals, and the Final Signed and Sealed bid ready Contract Documents.

TASK 2 – PROJECT MEETINGS AND COORDINATION

The purpose of this task is to define meetings and coordination requirements for the project.

Task 2.1 – Project Design Kickoff Meeting

The Engineer shall hold a project design kickoff meeting at the beginning of the project. The meeting shall be scheduled for about two (2) hours. The meeting's purpose shall be to establish project

objectives and critical success factors, define contacts and responsibilities, and discuss work tasks and coordination issues. The Engineer will present the project schedule and discuss the project tasks scheduled for the first three months of the project work.

Task 2.2 – Progress Review Meetings

Project progress review meetings (3 meetings) shall be conducted monthly. Progress review meetings shall be used to discuss project technical issues and alternatives and to keep the county and stakeholders informed regarding the status of the work.

The Engineer shall prepare agendas for regularly scheduled meetings. Documents to be discussed at the meetings shall be submitted as soon as they are available prior to the meeting.

Draft meeting minutes shall be prepared for review within one week of the meeting. Minutes shall include a log of action items ("action item log") and decisions made ("decision log"). Following receipt of comments, the final meeting record shall be distributed to the appropriate team members.

TASK 3 – PRELIMINARY INVESTIGATIONS: SURVEYS AND ENVIRONMENTAL CLEARANCE

Task 3.1 – Site Surveys

The Surveyor (Surveying And Mapping, SAM) shall provide additional Right-of-Way Survey and Topographic Survey to extend the existing surveys to the northeast approximately 1,500 linear feet. This surveying effort shall comprise three tasks: Aerial LiDAR Survey, Imagery/Orthophotography, and Right-of-Way Survey.

Site Surveying shall consist of the following:

- LiDAR and Imagery Acquisition and Calibration shall include setting and surveying up to five (5) aerial panels to be used to calibrate the data; scheduling and performing a flight in clear weather using an Unmanned Aerial System (UAS) with Riegl VUX or comparable system to provide a minimum of 50 LiDAR points per square meter and collect color imagery suitable to generate 3-inch pixel ground sample distance (GSD) resolution Ortho imagery. The Surveyor shall set up and run an airborne GPS base station during flight operations; post-process and review the data to confirm complete data acquisition coverage; identify any seams, holes, or unwanted artifacts in the data, and assess the need for any re-flights. The Surveyor shall calibrate the ".las" data into the appropriate survey datum provided by the client.

- LiDAR Data Classification and Feature Extraction shall be performed by experienced LiDAR technicians and shall include automated filtering of the data and topographic mapping; locating, extracting, and digitizing into the CAD environment existing planimetric features, topographic key points and break lines; Quality Control by a senior Photogrammetrist/Project Lead to ensure all visible features are shown and vectorized correctly; and compiling the following features in an Autodesk Civil3D 2018 CAD file: (1) one-foot contours based on the extracted LiDAR key points and break lines, (2) outlines of all visible structures, and (3) limits (edge of pavement or roadway) for all paved and apparent un-paved roadways and parking areas.

- Orthophoto Processing shall include processing all digital orthophotos to have a 3-inch GSD resolution using the LiDAR bare earth filtered dataset to rectify the aerial imagery, preparing and checking a mosaic of the digital orthophotos to ensure color, tone, and contrast are optimized across the project area. Mosaic lines shall be placed and hidden along linear features to avoid cutting through buildings and other aboveground structures. Individual tiles shall be cut to limit the file size to less than 100 MB, and imagery shall be provided in TIF and compressed ECW formats.

- Right-of-Way Survey shall include establishing four (4) primary survey control points; obtaining current deeds and/or plats from the Brazoria County Clerk, roadway plans from Brazoria County and/or TxDOT, and other existing survey information that will show the existing right-of-way; reviewing and analyzing the current recorded deeds and/or plats, adjoining deeds, plats, and right-of-way information; and field locating all the subject property corner markers, fences, and/or other items that will allow the Surveyor to construction the boundaries and rights-of-way of the existing Bluewater Highway for the revised length of the project.

The Engineer will coordinate with the Surveyor to finalize the area to be surveyed. The engineer will coordinate with the Surveyor for any revisions or clarifications in the final survey transmitted.

The Engineer will use the topographic survey information provided by Surveying And Mapping (SAM). The engineer will review the information provided to determine if supplemental information is required for the project's design.

The Engineer will input the survey data into MicroStation and the OpenRoads terrain model for design purposes.

Survey proposal is included as Attachment 4.

Task 3.2 – Environmental Investigations

The Environmental sub-consultant (Berg | Oliver Associates, BOA) shall provide the following environmental investigations, which will include updating the Phase 1 portions of these studies beyond the geographic scope defined in Phase 1, as requested, to extend the project area to the northeast approximately 1,500 linear feet. This environmental investigation effort shall encompass the area within approximately 55 feet from the edge of pavement and comprise four tasks: Initial ISA (Limited Phase 1 ESA), Waters of the U.S. (WOTUS) Delineation, Threatened and Endangered Species, and Cultural Resources Pedestrian Survey.

- Initial ISA (Limited Phase 1 ESA)
- Waters of the U.S. (WOTUS) Delineation
- Threatened and Endangered Species Survey
- Cultural Resources Pedestrian Survey

The Engineer will coordinate with the environmental consultant to provide the Area of Potential Effect (APE) and other exhibits as required to get approval and environmental clearance.

If environmentally sensitive areas are identified, they will be shown on the plans and will be avoided with the proposed sand dune.

Environmental proposal is included as attachment 3.

TASK 4 – DESIGN

The Design phase work comprises three (3) principal subtasks: 50% Preliminary Design Submittal, 100% Final Design Submittal, and the Final Signed and Sealed bid ready Contract Documents.

Task 4.1 – Preliminary (50%) Design Submittal

The 50% Design submittal shall include the following:

- Preliminary Design drawings at a 40 scale of the dune including the cover sheet, index of sheets, project layout, abbreviations, legends and symbols, general construction notes, summary of quantities and pay items, dune typical section, temporary traffic control sheets, survey controls, plan view on double stack plan sheets, construction details with access locations, and storm water pollution prevention plan sheets. Cross sections at 50-foot intervals.
- Preliminary specifications
- Preliminary Engineer's opinion of probable construction cost estimate
- The submittal will be made for Brazoria County and GLO review and comment.

Task 4.2 – Final (100%) Design Submittal

The Engineer shall advance the design and design documents to the 100% Design level by incorporating GLO and Brazoria County comments from the 50% Design Submittal, completing the design and contract drawings and specifications, and performing the Engineer's QC review of the final work product.

This task includes the following activities:

- Prepare and submit the 100% Design Submittal. This shall include the contract drawings and specifications, updated Engineer's opinion of probable construction cost estimate, and construction time determination schedule.
- Updated Engineer's opinion of probable construction cost estimate
- Quality Control Reviews. Prior to making the 100% Design Submittal, the Engineer shall perform a detailed quality control review of the entire project. This review includes checks involving the completion of plans and details, and agreement between drawings and specifications.
- The submittal will be made for Brazoria County and GLO review and comment.

Task 4.3 – Bid Ready Documents

Comments received during the 100% design review shall be incorporated into the Bid Ready Contract Documents. Following the incorporation of any review comments, the Bid Ready Contract

Documents will be sealed, signed, and delivered to Brazoria County for bidding. DEC anticipates Brazoria County will provide their front-end documents for inclusion in the project manual.

The Bid Ready Documents submittal will include the following:

- Contract drawings
- Contract specifications
- Project manual
- Engineer's opinion of probable construction cost (OPCC) estimate
- Electronic files of drawings and specifications on USB Drive
- The submittal shall include six (6) half-size (11" X 17") hardcopies, and an electronic copy on a USB Drive of the following:
    - Complete signed and sealed final design drawings for the Project in .pdf file format
    - Final bidding documents, and technical specifications in .pdf file format

TASK 5 – ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST ESTIMATE

This task shall manage the cost elements of the project. The Engineer shall develop the Engineer's opinion of probable construction cost estimate based on local prices and historical data.

Task 5.1 – Engineer's Opinion of Probable Construction Cost (OPCC)

The Engineer's opinion of probable construction cost (OPCC) estimate shall be prepared and submitted to Brazoria County and the GLO. The Engineer's OPCC and cost updates will be presented in the form of a report and will be updated for the 50% and 100% Design Submittals. The final Engineer's OPCC shall be prepared as part of the Bid Ready Documents Submittal. TxDOT historical data, local vender pricing, and other recently bid Brazoria County contracts will be the source of the unit prices for the Engineer's OPCC.

TASK 6 – BIDDING AND AWARD PHASE SERVICES

Task 6.1 – Bidding Support

The Engineer shall support Brazoria County during the bidding phase of the project. The Engineer shall assume the project will bid utilizing one construction contract (general construction contract). The Engineer shall provide the following services:

- Attend the pre-bid conference and assist Brazoria County staff in conducting the conference.
- Respond to questions and inquiries from contractors.
- Prepare contract addenda, as needed.
- Attend the bid opening and assist with the tabulation of the bid results (as required).
- Prepare a summary bid report with recommendation for contract award (as required).

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TASK 7 – CONSTRUCTION MANAGEMENT AND INSPECTION SERVICES

Task 7.1 – Construction Engineering

- DEC will attend and assist the Brazoria County staff conduct the preconstruction meeting.
- DEC will attend monthly coordination meetings.
- DEC will track and address RFIs as they are submitted.
- DEC will attend the final walk-through and prepare a punch list of items to be completed.
- DEC will prepare Record Drawings and complete the project close-out.

COMPENSATION

The Engineer will perform the above design, survey, and environmental tasks and project management on a Lump Sum for an additional not-to-exceed amount of **$211,836** in accordance with our Engineering Services Agreement with Brazoria County.

	Phase 1 Budget	Phase 1 Executed	Phase 1 Funds Remaining	Phase 2 Budget	Additional Fee Requested	Total Fees
PM and Engineering	**$75,000**	**$24,695**	**$50,305**	**$243,925**	**$193,620**	**$268,620**
Environmental	**$54,350**	**$35,508**	**$18,842**	**$26,542**	**$7,700**	**$62,050**
Survey	**$53,400**	**$41,916**	**$11,484**	**$22,000**	**$10,516**	**$63,916**
Total Project	**$182,750**	**$102,119**	**$80,631**	**$292,467**		**$394,586**
Total Additional Fee					**$211,836**	

PM and Engineering proposal is included as Attachment 2.

SCHEDULE

The Engineer will complete the above scope of services through Final Bid Ready Contract Documents within 3 months from notice to proceed for design. Deliverables and milestones will be completed in accordance with the design schedule provided by the Engineer and approved by Brazoria County.

Proposed Project Schedule is included as Attachment 1.

Primary Point of Contact:

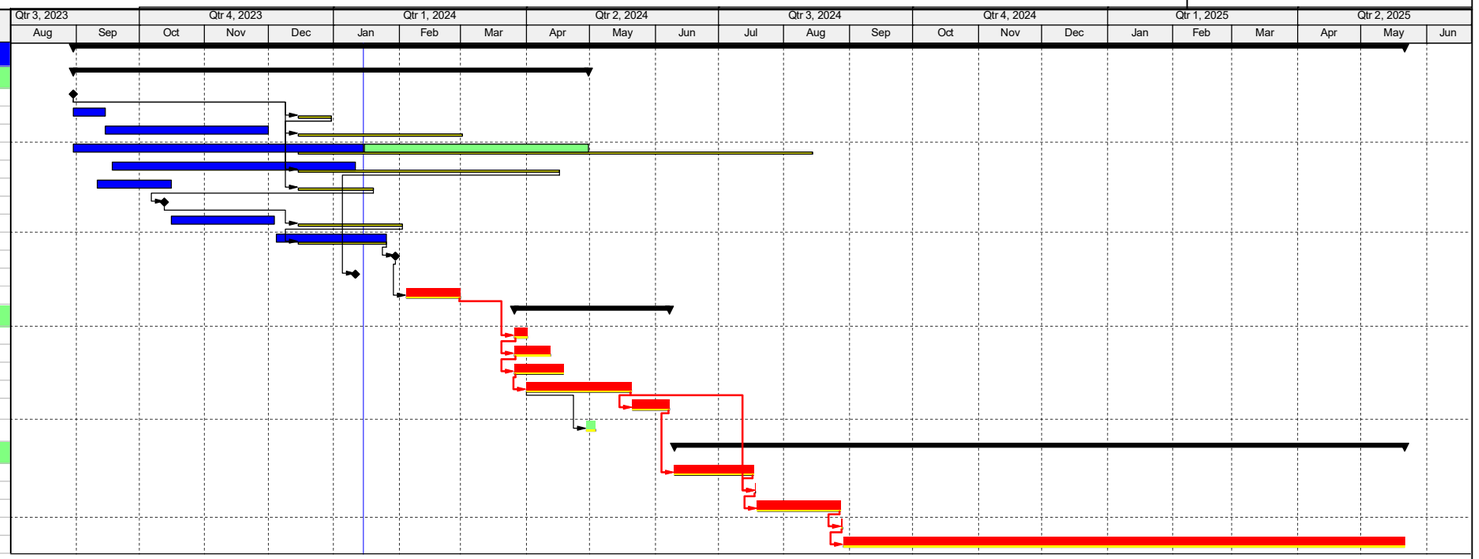
- Chris Sallese (DEC) - Program Manager, 713-817-8497, chris.sallese@decorp.com

WBS No. R-000267-174-3

Brazoria County Dunes Project - February Update

Data Date: 19-Mar-24 17:12
Schedule Run Date; 19-Mar-24

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish
Brazoria County Dunes Project - February Update		374	353	31-Aug-23 A	21-May-25
Phase 1		174	77	31-Aug-23 A	30-Apr-24
A1000	Kick-off Meeting with the County and Regulatory Agencies	0	0	31-Aug-23 A	
A1010	Review Existing Information	16	0	31-Aug-23 A	15-Sep-23 A
A1020	GLO Coordination of Alternatives	78	0	15-Sep-23 A	01-Dec-23 A
A1030	Permit Processing (Assumed Nationwide Permit, NWP, 7 to 8 Months, if Req	244	107	31-Aug-23 A	30-Apr-24
A1040	Environmental Field Investigations	124	0	18-Sep-23 A	11-Jan-24 A
A1050	Survey Field Investigations (Land and Aerial Drone)	36	0	11-Sep-23 A	16-Oct-23 A
A1070	Draft Survey Data to Engineer	0	0		13-Oct-23 A
A1073	Final Survey Data to Engineer	36	0	16-Oct-23 A	04-Dec-23 A
A1075	Alternatives Development, Development of Preliminary Drawings, Exhibits an	42	0	05-Dec-23 A	26-Jan-24 A
A1080	Alternatives Analysis Briefing	0	0		30-Jan-24 A
A1085	Environmental Report to Engineer	0	0		11-Jan-24 A
A1086	Phases 2-3 Proposal and Negotiations	26	26	04-Feb-24	29-Feb-24
Phase 2		54	54	26-Mar-24	07-Jun-24
A1087	Phase 2 NTP and Design Kickoff Meeting	7	7	26-Mar-24	01-Apr-24
A1088	Environmental Field Investigations and Environmental Report Update to Eng	18	18	26-Mar-24	12-Apr-24
A1089	Survey Field Investigations - Eastward Dune Extension (Land and Aerial Dron	24	24	26-Mar-24	18-Apr-24
A1090	Develop Final Plans, Specifications and Cost Estimates / Bid Documents	50	50	01-Apr-24	20-May-24
A1093	County Review	14	14	21-May-24	07-Jun-24
A1130	Coordination with GLO at 50% DEsign Submittal Review	5	5	29-Apr-24	03-May-24
Phase 3		248	248	10-Jun-24	21-May-25
A1096	Contracting	28	28	10-Jun-24	17-Jul-24
A1100	Bid Project	1	1	18-Jul-24	18-Jul-24
A1105	Award and Issue NTP For Construction	28	28	19-Jul-24	27-Aug-24
A1110	Construction Award	1	1	28-Aug-24	28-Aug-24
A1120	Construction	266	266	29-Aug-24	21-May-25



- Remaining Level of Effort
- Actual Level of Effort
- Project Baseline Bar
- Primary Baseline
- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone
- Summary

Schedule Assumes the Following:

- Council Approval August 30, 2023 and Letter of Authorization (LOA) October 10, 2023
- TRC Meeting March 2024 - Phase 1
- City PS&E Reviews to be 3 Months for 30%, 7 Weeks for 60% and 5 Weeks for 90% & 100%
- Bid & Award to be 3 Months Long
- Projects to be Constructed Simultaneously

Project Schedule will be Adjusted for any Changes to the Above Assumptions

DEC ENGINEERING EXCELLENCE®

Brazoria County Bluewater Highway Dune Restoration - DEC Fee Estimate, March 19, 2024

	Task Description	Principal/ PM	Deputy PM	Quality Manager	Senior Engineer	Project Engineer	SR. CAD Tech / EIT	CAD Drafter	Project Coordinator	Total Hours	Total Labor
	Bill Rate =	$390	$270	$250	$225	$210	$150	$125	$105		
Task 1 - Project Management											
1.1	Monthly Progress Reports (Assume 3 Reports)	4	12			12			6	34	$ 7,950
1.2	Quality Assurance/Quality Control (QA/QC)										
	QC of 50% Design	4	12	24						40	$ 10,800
	QC of 100% Design	4	12	24						40	$ 10,800
	QC of Bid Ready Documents	4	12	24						40	$ 10,800
1.3	Baseline Project Schedule (Detailed Design Schedule)	4	8		8					20	$ 5,520
1.4	Schedule Modifications & Updates (at 50% and 100%)	4	8		4					16	$ 4,620
	Task 1 Subtotal	**24**	**64**	**72**	**12**	**12**	**0**	**0**	**6**	**190**	**$ 50,490**
Task 2 - Project Meetings & Coordination											
2.1	Project Design Kickoff Meeting	2	2		2	4	2	2	2	16	$ 3,370
2.2	Progress Review Meetings (Assume 3)	4	12		8				12	36	$ 7,860
	Task 2 Subtotal	**6**	**14**	**0**	**10**	**4**	**2**	**2**	**14**	**52**	**$ 11,230**
Task 3 – Preliminary Investigations: Survey & Environmental Clearance											
3.1	Site Survey (Coordination with the Surveyor)	1	4		4	2	2			13	$ 3,090
3.2	Environmental Investigation (Coordination with the Environmental Consultant)	1	3	2	2	2	4	4	4	22	$ 4,090
	Task 3 Subtotal	**2**	**7**	**2**	**6**	**4**	**6**	**4**	**4**	**35**	**$ 7,180**
Task 4 –Preliminary 50% Design Submittal											
4.1	Preliminary 50% Design Submittal (Drawings & Specifications)										
	Cover Sheet	1	2	1		2	2	4		12	$ 2,400
	Index of Sheets	1	2	1		2	2	4		12	$ 2,400
	Project Layout	1	2	1		6	4	8		22	$ 4,040
	Abbreviations, Legends & Symbols Sheet	1	2	1		2	2	4		12	$ 2,400
	General Construction Notes Sheets	1	2	1	2	4		2		12	$ 2,720
	Summary of Quantities Sheets	1	2	1				8		12	$ 2,180
	Dune Typical Section	2	4	2	4	4	4	4		24	$ 5,200
	Temporary Traffic Control	2	4	2	4	4	4	4		24	$ 5,200
	Survey Control Data Sheets	1	2	1	2		2	4		12	$ 2,430
	Dune Plan Sheets	3	6	3		8	8	8		36	$ 7,420
	Dune Construction Details with Access locations	1	2	1		2		6		12	$ 2,350
	SW3P Epic Sheet	1	2	1		4	4			12	$ 2,620
	SW3P Plan Sheets	3	6	3		8	8	8		36	$ 7,420
	SW3P Detail Sheets	1	2	1		2		6		12	$ 2,350
	Specifications	2	4	2		8				16	$ 4,040
4.2	Final 100% Design Submittal										
	Cover Sheet	1	1			1	1	2		6	$ 1,270
	Index of Sheets		1	1		1	1	2		6	$ 1,130
	Project Layout	1	1			3	2	4		11	$ 2,090
	Abbreviations, Legends & Symbols Sheet		1	1		1	1	2		6	$ 1,130
	General Construction Notes Sheets	1	1		1	2		1		6	$ 1,430
	Summary of Quantities Sheets		1	1				4		6	$ 1,020
	Dune Typical Section	1	1	1	2	2	2	2		11	$ 2,330
	Temporary Traffic Control	1	1	1	2	2	2	2		11	$ 2,330
	Survey Control Data Sheets		1		1		1	2		5	$ 895
	Dune Plan Sheets	2	3	2		4	4	4		19	$ 4,030

Brazoria County Bluewater Highway Dune Restoration - DEC Fee Estimate, March 19, 2024

	Task Description	Principal/ PM	Deputy PM	Quality Manager	Senior Engineer	Project Engineer	SR. CAD Tech / EIT	CAD Drafter	Project Coordinator	Total Hours	Total Labor
	Bill Rate =	$390	$270	$250	$225	$210	$150	$125	$105		
	Dune Construction Details with Access locations	1	1			1		3		6	$ 1,245
	SW3P Epic Sheet		1	1		2	2			6	$ 1,240
	SW3P Plan Sheets	1	3	2		4	4	4		18	$ 3,640
	SW3P Detail Sheets	1	1			1		3		6	$ 1,245
	Specifications	1	1	1		4				7	$ 1,750
4.3	Bid Ready Documents										
	Cover Sheet	1	1			1	1	2		6	$ 1,270
	Index of Sheets		1	1		1	1	2		6	$ 1,130
	Project Layout	1	1			3	2	4		11	$ 2,090
	Abbreviations, Legends & Symbols Sheet		1	1		1	1	2		6	$ 1,130
	General Construction Notes Sheets	1	1		1	2		1		6	$ 1,430
	Summary of Quantities Sheets		1	1				4		6	$ 1,020
	Dune Typical Section	1	1	1	2	2	2	2		11	$ 2,330
	Temporary Traffic Control	1	1	1	2	2	2	2		11	$ 2,330
	Survey Control Data Sheets		1		1		1	2		5	$ 895
	Dune Plan Sheets	2	3	2		4	4	4		19	$ 4,030
	Dune Construction Details with Access locations	1	1			1		3		6	$ 1,245
	SW3P Epic Sheet		1	1		2	2			6	$ 1,240
	SW3P Plan Sheets	1	3	2		4	4	4		18	$ 3,640
	SW3P Detail Sheets	1	1			1		3		6	$ 1,245
	Specifications	1	1	1		4				7	$ 1,750
	Task 4 Subtotal	**44**	**82**	**44**	**24**	**112**	**80**	**140**	**0**	**526**	**108,720**
Task 5 – Project Construction Cost											
5.1	Opinion of Probable Construction Cost (submitted at 50% & 100%)	2	8	4	16	16				46	$ 10,900
	Quantity Calculations	2	8	8		32	32			82	$ 16,460
	Task 5 Subtotal	**4**	**16**	**12**	**16**	**48**	**32**	**0**	**0**	**128**	**$ 27,360**
Task 6 – Bidding & Award Phase Services											
6.1	Attend Pre-bid Meeting	0	4		4			8	8	24	$ 3,820
	Respond to Bidder Questions (Assume 5)	2	10		5	5			5	27	$ 6,180
	Prepare Addenda (Assume 1)	1	2		2				3	8	$ 1,695
	Attend Bid opening & Assist with Bid Tabulation	2	6		3				3	14	$ 3,390
	Prepare Summary of Bids & Identify Apparent Low Bidder	2	4		2	4			2	14	$ 3,360
	Task 6 Subtotal	**7**	**26**	**0**	**16**	**9**	**0**	**8**	**21**	**87**	**$ 18,445**
	TOTAL	**87**	**209**	**130**	**84**	**189**	**120**	**154**	**45**	**1,018**	**223,425**
Task 7 – Construction Phase Services											
7.1	Site Visits (2 each)	8	8		8					24	$ 7,080
	RFI and Submittal reviews (8 each)		16	16	16					48	$ 11,920
	ODCs									0	$ 1,500
	Task 7 Subtotal	**8**	**24**	**16**	**24**	**0**	**0**	**0**	**0**	**72**	**$ 20,500**
	TOTAL	**95**	**233**	**146**	**108**	**189**	**120**	**154**	**45**	**1,090**	**$243,925**

BERG ♦ OLIVER ASSOCIATES

Environmental Science & Land Use Consultants
14701 St. Mary's Lane, Suite 400, Houston, Texas 77079
(281) 589-0898 fax: (281) 589-0007
Houston ◊ Dallas/Fort Worth ◊ www.bergoliver.com

ADDENDUM TO CONTRACT/CHANGE ORDER

The following is an addendum to an original agreement made between the following parties:

Dannenbaum Engineering Corporation
and
Berg♦Oliver Associates
BOA Contract No.: BOA034-12415CO1

Below is a summary of the budget for the original contract and studies BOA was initially contracted to perform, along with the additional budget herein requested for CO1:

Task	Description	Budget (Phase 1)	Remaining as of 1/31/24	CO1 Budget (Phase 2)
Task I	Initial ISA	**$3,450.00**	**$442.00**	**$2,000.00**
Task II	WOTUS Delineation	**$10,400.00**	**$1,516.00**	**$4,200.00**
Task III	T & E Species Survey	**$4,000.00**	**$898.00**	**$1,500.00**
Task IV	Cultural Resources Pedestrian Survey	**$22,750.00**	**$7,794.00**	**-**
Task V	Agency Coordination	**$4,100.00**	**$3,925.00**	**-**
Task VI	Project Management	**$9,650.00**	**$4,267.00**	**-**

Specifically, this addendum is for the following services, which will include updating the Phase 1 portions of these studies beyond the geographic scope defined in the original contract agreement, as requested by the client:

TASK I) INITIAL ISA (LIMITED PHASE 1 ESA) – Phase 2……$2,000.00

TASK II) WATERS OF THE U.S. (WOTUS) DELINEATION - Phase 2……..$4,200.00

TASK III) THREATENED AND ENDANGERED SPECIES - Phase 2……$1,500.00

GRAND TOTAL: $7,700.00

The above services will be completed by Berg♦Oliver Associates. Total charges will not exceed the specified Lump Sum Amount without written approval from the client. The original **Task IV – Cultural Resources Pedestrian Survey** will also be updated. No additional funds are needed for this effort.

Berg♦Oliver will begin the work described herein upon the execution of this proposal by the client. Invoices for each lump sum amount will be invoiced upon completion of the task or upon 50%, 75%, and 100%

completion if the project takes longer than thirty (30) days to complete, at the discretion of BOA. Payment of all invoices is expected within thirty (30) days of the client's receipt of the invoice submitted by Berg♦Oliver. If the invoice is not paid in full in thirty (30) days, interest will accrue at 1.5% per month (18% per annum).

Upon execution of this addendum by the client below, Berg♦Oliver is authorized to proceed with the services described in this addendum to the original contract.

SUBMITTED BY:

Jeff Dunn
Project Manager
Berg♦Oliver Associates

Date: February 8, 2024

ACCEPTED BY:

Dannenbaum Engineering Corporation

Date:

Via Email: Jared.Erickson@decorp.com

February 16, 2024
DE Corp
415 Embassy Oaks, Suite 102
San Antonio, Texas 78216
Attn: Jared B. Erickson, PE, Project Manager

Brazoria County Dune Restoration – Phase 1
Additional Right-of-Way and Topographic Survey
SAM Project No. 1020058337

Pursuant to your e-mail requests dated February 5 and February 15, 2024, Surveying And Mapping, LLC (SAM) provides this Change Order #1 to provide additional Right-of-Way Survey and Topographic Survey to extend the existing surveys to the northeast approximately 1,500 linear feet.

This work will be performed in accordance with the Subcontract for Professional Services Between DE Corp and Surveying and Mapping, LLC (Consultant) For Professional Services dated September 7, 2023.

FEE

Aerial LiDAR Survey:	$9,300
Imagery/Orthophography:	$5,300
Right-of-Way Survey:	$7,400
TOTAL FEE:	**$22,000**

Sincerely,

SURVEYING AND MAPPING, LLC
Donald J. Zdancewicz, RPLS
Austin Survey Department Manager
Direct (512) 895-5054
Donald.Zdancewicz@sam.biz

Scope of Services – Brazoria County Dune Restoration Aerial LiDAR Survey

LiDAR and Imagery Acquisition and Calibration

SAM will set and survey up to 5 aerial panels to be used to calibrate the data. Once the panels are set we will schedule the flight based on a clear weather window. Based on our extensive experience and commitment to quality, our proposed approach provides for a minimum of 50 LiDAR points of per square meter and will simultaneously collect color imagery suitable to generate 3-inch pixel GSD resolution orthoimagery. SAM plans to use a Riegl VUX system or comparable system mounted on a Unmanned Aerial System (UAS). SAM will mobilize to the site to set and run an airborne GPS base station during flight operations. SAM will acquire the LiDAR data in one day. After the acquisition phase, the data will be post-processed and reviewed to confirm complete data acquisition coverage. Any seams, holes, or other unwanted artifacts can be quickly identified to assess the need for any re-flights. The ".las" data will then calibrated into the appropriate survey datum provided by the client.

LiDAR Data Classification and Feature Extraction

Once the positional accuracy check is complete, experienced LiDAR technicians will execute and complete the LiDAR classification and feature extraction. This begins by performing an automated filtering and classification process. Automated filtering of the data is the first process necessary to complete the bare earth ground processing and prepare the topographic mapping. The next task involves digitizing or performing feature extraction of the planimetric and topographic features. Technicians will locate and extract topographic features visible to the airborne sensor. Existing planimetric features, topographic key points and break lines will be digitized into the CAD environment. Quality Control will be implemented by a senior Photogrammetrist/Project Lead to ensure all visible features are shown and vectorized correctly before creating the deliverables. The following features will be compiled in an Autodesk Civil3D 2018 CAD file per the client's specifications:

1. One foot contours based on the extracted LiDAR keypoints and breaklines.
3. Outlines of all visible structures.
4. Limits (edge of pavement or roadway) for all paved and apparent un-paved roadways and parking areas.

Orthophoto Processing

The digital orthophotos will be processed to have a 3-inch ground sample distance (GSD) resolution. The LiDAR bare earth filtered dataset will be used to rectify the aerial imagery. The digital orthophotos will be mosaicked and checked to insure color, tone and contrast is optimized across the project area. Every effort will be made to balance the contrast of the imagery however; there may be some slight variations in image contrast. There may also be some upper level cloud shadows on the ground within the imagery. Mosaic lines will be manually placed and hidden along linear features to avoid cutting through buildings and other above ground structures. Individual tiles will be cut to limit the file size to less than 100 MB. Imagery will be provided in TIF and compressed ECW formats.

Right-of-Way Survey

SAM will perform the following Survey services:

- SAM shall establish four (4) primary survey control points. The primary survey control points will be set in locations that will likely be undisturbed by construction or State/County maintenance. The project control will be placed on horizontal and vertical datums [NAD83/2011/NAVD88 values (Texas Coordinate System, Central Zone)]. All coordinates will be provided in Grid coordinates. A surface adjustment factor to be used on the project will be discussed with the Client and agreed upon before the start of survey work. Elevations will be derived from GPS observations using Geoid 2018 model.
- Obtain current deeds and/or plats from Brazoria County Clerk, roadway plans from Brazoria County and/or TxDOT, and other existing survey information that will show the existing right-of-way.
- Review and analyze the current recorded deeds and/or plats, adjoining deeds, plats and right-of-way information.
- Field locate all the subject property corner markers, fences, and/or other items that will allow SAM to construct the boundaries and rights-of-way of the existing Bluewater Highway for the length of the project.